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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,257	08/15/2005	Matthew E. Moore	DP-308433	2960
22851 7590 07/03/2007 DELPHI TECHNOLOGIES, INC. M/C 480-410-202 PO BOX 5052 TROY, MI 48007			EXAMINER MILLER, CARL STUART	
			ART UNIT 3747	PAPER NUMBER
			MAIL DATE 07/03/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/520,257

Applicant(s)

MOORE, MATTHEW E.

Examiner

Carl S. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/6/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (EP('471)) in view of Braun (WO('869)).

Ishida teaches all of the limitations of these claims except for the check valve in the feed line to the injector. The applicant's attention is particularly directed to Figures 1-4. These figures also show that the control valve never allows the delivery passage to connect to the drain (applicant's claim 9).

Braun teaches a system very similar to the Ishida system but including a check valve in the delivery line.

It would have been obvious to modify the system of Ishida by using a check valve in the delivery line because in both systems there was a possibility of pressure wave feedback that would be blocked by such a check valve.

Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida and Braun as applied to claim 1 above, and further in view of Koenigsweiser.

Koenigsweiser teaches the use of a cone-shaped (on one end) control valve member that is used to direct or vent pressure on the backside of an injector control chamber. As noted, one end of the valve member is in the shape of a cone while the other end is relatively flat. There are two opposing seats for the valve member. One of ordinary skill in the art would know how to orient this valve in order to achieve the

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venting operation used in the Ishida control valve and it would have been obvious to use the Koenigsweiser valve in Ishida because both valves were being used to control injection in almost identical pumping systems.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida and Braun as applied to claim 1 above, and further in view of Burgler.

Burgler (DE('227)) teaches a booster pump and injector combination that uses a two-piece housing for both devices thereby making it obvious to use a single housing of this nature in Ishida since the latter already taught the use of a one-piece single housing.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida and Braun as applied to claim 1 above, and further in view of Mahr ('416).

Mahr teaches an injection system similar to the Ishida system and having two possible pressure levels available for injection. The lower level can be as low as 30 bar and the higher level can be 2000 bar. A pressure level of over 2000 bar would have been an obvious modification.

It would have been obvious to modify Ishida by using the two pressure ranges taught by Mahr because these are the pressures needed for combustion optimization in such systems.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl S. Miller whose telephone number is 571-272-4849. The examiner can normally be reached on MTWTHF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Cronin, can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Carl S. Miller*  
Primary Examiner  
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